**Stage 1 Robotic and Electronic Systems**

**Design, Technology and Engineering**

School Assessment

**Assessment Type 1: Specialised Skills Task 1**

Purpose

Students develop knowledge and skills through specialised skills tasks. They apply the skills, processes and techniques in the chosen context. This informs the design development for a solution in Assessment Type 2. Students evaluate and assess the development of their own skills in this assessment task. They review how these processes and techniques may influence their solution.

Description of task

**Robotics**

Students will be supplied with an EV3 Robot and Lego kit; Students will only be able to use the parts in the kit Supplied.

In this task, Students will be required to build/code the EV3 to perform the following tasks:

1. Moving the bot around. Forward, back, left, and right around box.
2. Ultrasonic sensor. Moving the Robot to a point then changing directions.
3. Finding and collecting an object on a table.
4. Colour sensor. Moving the bot to a line then changing directions.
5. Colour/ultrasonic sensor. Getting the Robot out of a maze.
6. Colour/ultrasonic Sumo bots. Push another Robot out of an arena.
7. Battle bots. Pop balloons on Robots. Autonomies
8. Battle bots. Pop balloons on bots. Remote controlled.

Please note that assessment will be based attention to detail on the code and on functionality of the robot.

**Mini Folio**

The designing of the Sumo bot will be created in line with a folio you will need to have the following within the folio:

1. Design Brief
2. Constraints (3 minimum)
3. Research (3 x annotated pictures)
4. Ideas and Sketches (Hand Drawings)
5. Evaluation.

Assessment conditions

Evidence for this assessment type should be provided in multimodal form, including a series of images, to a maximum of 2 minutes, 300 words in written form or a combination of these.

For this assessment type, students provide evidence of their learning in relation to the following assessment design criteria:

* Production (P1, P2)
* Evaluation (E1)

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| Investigations and Analysis | | Design Development and Planning | Production | Evaluation |
| A | Comprehensive and insightful analysis of the design features of products, processes, materials, systems and/or production techniques  Purposeful research and critical analysis of ethical, legal, economic and/or sustainability issues | Insightful and comprehensive communication of design concepts using relevant technical language and visual representations  Insightful and thorough planning, development, testing and validation of design concepts and procedures | Highly proficient application of skills, processes, procedures and techniques to create a solution  Comprehensive development of solutions to technical problems that arise during the solution realisation | Comprehensive and insightful evaluation of the solution features and realisation process |
| B | Thoughtful and well-considered analysis of the design features of products, processes, materials, systems and/or production techniques  Detailed research and well-considered discussion of ethical, legal, economic and/or sustainability issues | Thoughtful and well-considered communication of design concepts using relevant technical language and visual representations  Well-considered planning, development, testing and validation of design concepts and procedures | Proficient application of skills, processes, procedures and techniques to create a solution  Thoughtful development of solutions to technical problems that arise during the solution realisation | Well-informed and detailed evaluation of the solution features and realisation process |
| C | Considered analysis of the design features of products, processes, materials, systems and/or production techniques  Research and some analysis of ethical, legal, economic and/or sustainability issues | Clear communication of design concepts using technical language and some visual representations  Competent planning, development, testing and validation of some design concepts and procedures | Competent application of skills, processes, procedures and techniques to create a solution  Development of solutions to technical problems that arise during the solution realisation | Considered evaluation of the solution features and realisation process |
| D | Identification of the design features of products, processes, materials, systems and/or production techniques  Some description of information about ethical, legal, economic and/or sustainability issues | Basic communication of design concepts using some technical language  Some planning and development of design concepts and/or procedures | Basic application of some skills, processes, procedures and techniques to create a solution  Some endeavour to develop solutions to technical problems that arise during the solution realisation | Some description of the solution features and realisation process |
| E | Attempted identification of the design features of products, processes, materials, systems and/or production techniques  Some accessing of information about ethical, legal, economic and/or sustainability issues | Superficial and simplistic communication of design concepts  Limited use of information to plan design concepts | Limited application of emerging skills  Attempted development of a solution to a technical problem | Emerging recognition of the solution features and realisation process |

Teacher comment:

Overall grade